

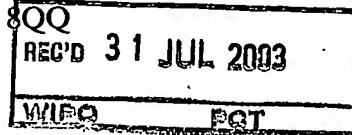


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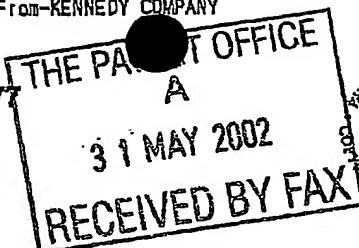
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Dated

2 June 2003

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Patents Form 1/77

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(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road  
Newport  
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1. Your reference

jcm.2308.uk.dk/kv.d

2. Patent application number  
(The Patent Office will fill in this part)

13 MAY 2002

0212597.9

3. Full name, address and postcode of the or of each applicant (underline all surnames)

John McGuire  
33 Hawthorn Drive  
GIRVAN  
Ayrshire  
KA26 0BE

Patents ADP number (if you know it)

8394138001

If the applicant is a corporate body, give the country/state of its incorporation

4. Title of the invention

Apparatus for holding a catheter bag

5. Name of your agent (if you have one)

Kennedy's

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Floor 5, Queens House  
29 St Vincent Place  
GLASGOW  
G1 2DT

Patents ADP number (if you know it)

8036758002

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country

Priority application number  
(if you know it)Date of filing  
(day / month / year)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing  
(day / month / year)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

No

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
- See note (ii)

Patents Form 1/77

## Patents Form 1/77

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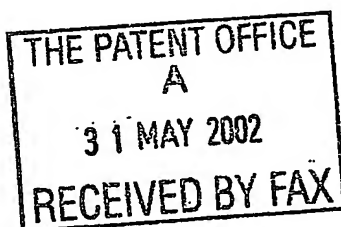
9

Claim(s)

Abstract

Drawing(s)

4



10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents  
(please specify)

11.

I/We request the grant of a patent on the basis of this application.

Signature  
KENNEDYS

Date  
31 May 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

Karen Veitch

0141 226 6826

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Patents Form 1/77

1 Apparatus for holding a catheter bag

2

3 The present invention relates to medical apparatus. More  
4 particularly the present invention relates to apparatus  
5 for holding a catheter or drip bag, which can detect when  
6 the contents of the bag reach a certain level, and which  
7 can be used to report when the bag requires emptying or  
8 filling.

9

10 A catheter is a thin and flexible tube inserted into a  
11 bodily passage or cavity in order to allow fluids to pass  
12 into or out of it. The catheter is generally connected to  
13 a catheter bag, which collects the fluids passing out, or  
14 a drip bag which stores the fluids passing into the body.  
15 Catheterisation is commonly used in hospitals, care homes  
16 and medical centres for seriously ill patients, or those  
17 who are confined to a bed or wheelchair.

18

19 As catheter or drip bags have a finite capacity (usually  
20 around 2000 ml) nursing and/or care staff must check the  
21 bags on a regular basis, to empty them if full or to fill  
22 them if empty.

23

1 Where the catheter is being used for excretion  
2 collection, i.e. for the passage of fluids out of the  
3 body, overfilling of the catheter bag can cause a  
4 backflow through the tubing and back into the body, and  
5 particularly into the bladder and kidney. This can  
6 result in infection of the urinary tract of the patient,  
7 which may necessitate a further treatment. As the  
8 patient will need to remain in the hospital for longer  
9 than would otherwise be necessary, the cost of caring for  
10 the patient is greatly increased and valuable resources  
11 are wasted on treating what is, essentially an avoidable  
12 situation.

13  
14 However in busy hospitals or care homes, it may be  
15 difficult for the nursing staff to check the catheter or  
16 drip bags as often as would be desirable. The need to  
17 visit every patient's bed to check the contents of the  
18 bag on a regular basis uses up valuable staffing time. A  
19 further problem lies in the fact that, at present,  
20 catheter bags are often stored under the bed of the  
21 patient. This adds to the inconvenience to nursing staff  
22 who must actively go around every bed and pull out the  
23 bag to check its contents.

24  
25 It is therefore an object of the present invention to  
26 provide an apparatus, which can be used to hold a  
27 catheter or drip bag in a position where the contents can  
28 be easily viewed. An associated object of the present  
29 invention is to provide an apparatus, which can detect  
30 when the contents of the catheter or drip bag reach a  
31 certain level and which provides an indication or warning  
32 when the bag requires emptying or filling.

33

1 According to the present invention, there is provided  
2 apparatus capable of indicating when the contents of a  
3 catheter or drip bag reach a certain level, the apparatus  
4 being comprised of indicator means, a lower component,  
5 and an upper component having attachment means for  
6 holding the catheter or drip bag, wherein the upper  
7 component moves in a substantially vertical direction  
8 relative to the lower component as the contents of the  
9 catheter or drip bag changes, and wherein movement of the  
10 second component activates the indicator means.

11  
12 Preferably the upper and lower component are hollow  
13 tubulars.

14  
15 The lowermost region of the upper component may be  
16 located within the lower component. The diameter of the  
17 upper component may be marginally smaller than the  
18 diameter of the lower component.

19  
20 Preferably a compression spring and magnetic array are  
21 located in the lower component.

22  
23 Most preferably the upper component sits upon the  
24 compression spring.

25

26

27

28 Preferably the compression spring is calibrated.

29

30 Preferably a read switch is located within the upper  
31 component.

32

1 Most preferably the indicator means is activated when the  
2 read switch in the upper component comes into the  
3 proximity of the magnetic array in the lower component.  
4

5 In a first embodiment the read switch will come into the  
6 proximity of the magnetic array when the bag is nearly  
7 full. The weight of the catheter bag as it fills will  
8 move the upper component in a downward direction on the  
9 compression spring in the lower component. This causes  
10 the read switch in the upper component to move towards  
11 the magnetic array in the lower component.  
12

13 In a second embodiment the read switch will come into the  
14 proximity of the magnetic array when the drip bag is  
15 almost empty. The apparatus comprises a further tubular  
16 having a first end, which can be attached to the stand,  
17 and a second end to which a drip bag can be attached. In  
18 the second embodiment a tension spring is located within  
19 the hollow tubular.  
20

21 The indicator means may be battery powered.  
22

23 In one embodiment the indicator means is located on the  
24 upper or lower component. In an alternative embodiment  
25 the indicator means is in a remote location to the  
26 apparatus.  
27

28 The attachment means may be located on a further  
29 component, which is transverse to the upper component.  
30

31 The third component is typically a hollow tubular.  
32

1 Where the indicator means is battery operated, battery  
2 access may be positioned in the component transverse to  
3 the upper component.  
4

5 The apparatus is typically free standing. To facilitate  
6 standing, the lower component may have a base. The base  
7 may have a plurality of feet.  
8

9 Preferably the apparatus is comprised of stainless steel.  
10

11 An example embodiment of the present invention is  
12 described with reference to the following Figures, in  
13 which:  
14

15 Figure 1 is a pictorial view of the apparatus of the  
16 present invention;  
17

18 Figure 2 is an engineering drawing of the apparatus from  
19 the side;  
20

21 Figure 3 is an engineering drawing of the apparatus  
22 viewed at an angle;  
23

24 Figure 4 is an engineering drawing of the apparatus from  
25 the back;  
26

27 Figure 5 is an engineering drawing of the apparatus from  
28 below;  
29

30 Figure 6 is an exploded view of the apparatus, and  
31

32 Figure 7 illustrates the tubular used in connection with  
33 a drip bag.



1 of the type commonly used in hospitals or care homes can  
2 be mounted on the apparatus using the attachment means 8.  
3 The attachment means 8 may take the form of pegs, clips  
4 or hooks. A read switch is also located within the upper  
5 component.

6  
7 In a first embodiment, an indicator means is activated  
8 when the read switch in the upper component comes into  
9 the proximity of the magnetic array in the lower  
10 component. The weight of the catheter bag as it fills  
11 will move the upper component in a downward direction on  
12 the compression spring. This causes the read switch in  
13 the upper component to move towards the magnetic array in  
14 the lower component. In other words as the catheter bag  
15 fills, the weight of the bag will pull upper component 5  
16 in a downward direction towards lower component 2 on  
17 compression spring 6, in the direction of arrow B.

18  
19 When the read switch and magnetic array come into close  
20 proximity the indicator means is activated, which  
21 notifies nursing or care staff that the contents of the  
22 bag have reached a particular level and require emptying.  
23 In the embodiment described herein the switch will  
24 activate when the contents of the bag reach 1800 ml. As  
25 many catheter bags can hold 2000ml of fluid, activation  
26 of the indication means when the contents of the bag  
27 reach 1800 ml gives the nursing or care staff time to  
28 empty the bag before it becomes entirely full and  
29 backflows into the associated tubing. However it should  
30 be recognised that the calibration of the spring can be  
31 changed, and that the apparatus is not limited to work at  
32 these volumes. The apparatus may be adapted to activate

1 the indication means when the capacity of the bag is less  
2 or more than 1800 ml depending on the situation.

3  
4 In the depicted embodiment, the indication means  
5 comprises one or more warning lights 12 provided as one  
6 or more LED lens. In one embodiment three warning lights  
7 of red, amber and green, may be provided. These will  
8 provide an escalating level of warning relating to the  
9 contents of the bag. For example, using the Figures  
10 given above, at 1600 ml the green light may be activated.  
11 At 1700 ml the amber light may be activated and at 1800  
12 ml the red light may be activated. This will give  
13 nursing staff an advance indication of how full the  
14 catheter bag is. Alternatively, the indication mean may  
15 simply be one flashing light. The indicating means may  
16 also comprise a buzzer or some other audible signal.

17  
18 In a second embodiment, where fluid (such as plasma or  
19 saline) is being passed into the body, and the catheter  
20 bag empties, the weight of the bag will gradually  
21 decrease and the upper component 5 will move in the  
22 direction of arrow C, as less weight is exerted on  
23 compression spring 6. Upon reaching a particular point,  
24 as in the first a switch will be activated which in turn,  
25 switches on the indication means to notify nursing or  
26 care staff that the contents of the bag are low and it  
27 requires filling.

28  
29 In a yet further embodiment, shown in Figure 7, the  
30 apparatus comprises a tubular 13 having a first end 14  
31 which can be attached to the stand, and a second end 15  
32 to which a drip bag can be attached. The tubular is  
33 typically hollow and can hold one or more batteries (not

1 shown). A tension spring is located within the hollow  
2 tubular and an indicator means typically being a LED lens  
3 17 is provided on the tubular body. The first and second  
4 ends typically carry hooks 16, clamps or the like which  
5 facilitate attachment to the drip back and stand. The  
6 indicator means will be activated when the contents of  
7 the bag reach a certain level and the weight sufficiently  
8 decreases to activate the indicator.

9

10 An indication means may also be located in a remote  
11 location, for example at a nursing station, so that  
12 nursing and care staff can monitor all patients within a  
13 ward without having to undertake a ward round. This will  
14 greatly reduce the time spent by nursing staff monitoring  
15 patients, as they will not need to go round individual  
16 beds checking whether individual bags require emptying.

17

18 Further modifications and improvements may be  
19 incorporated without departing from the scope of the  
20 invention herein intended.

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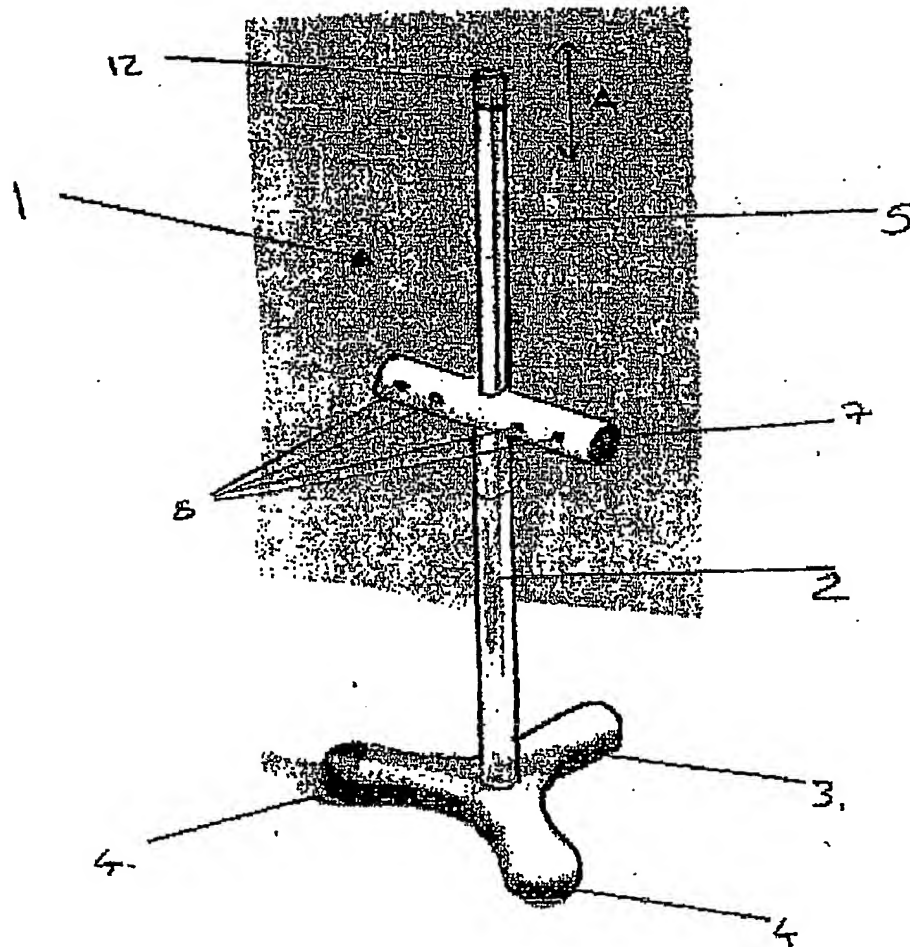


FIG 1.

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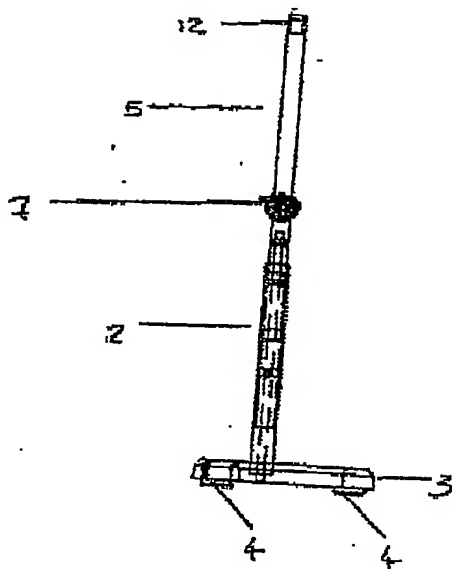


FIG 2

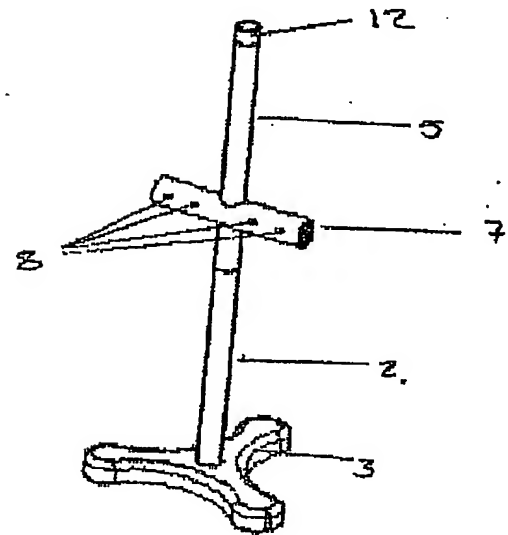


FIG 3

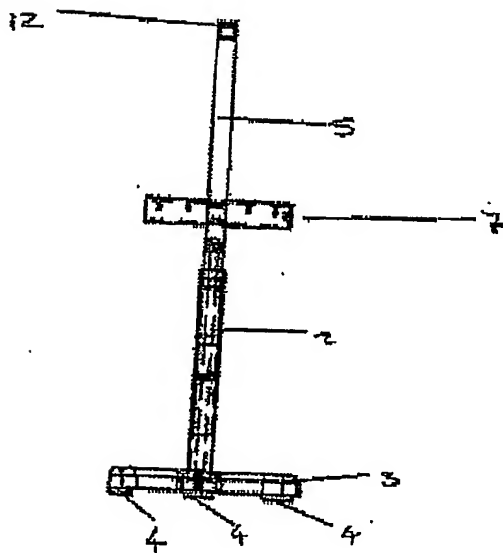


FIG 4

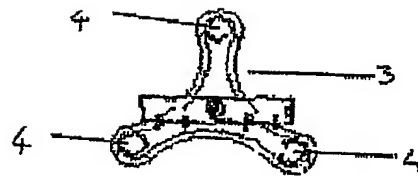


FIG 5

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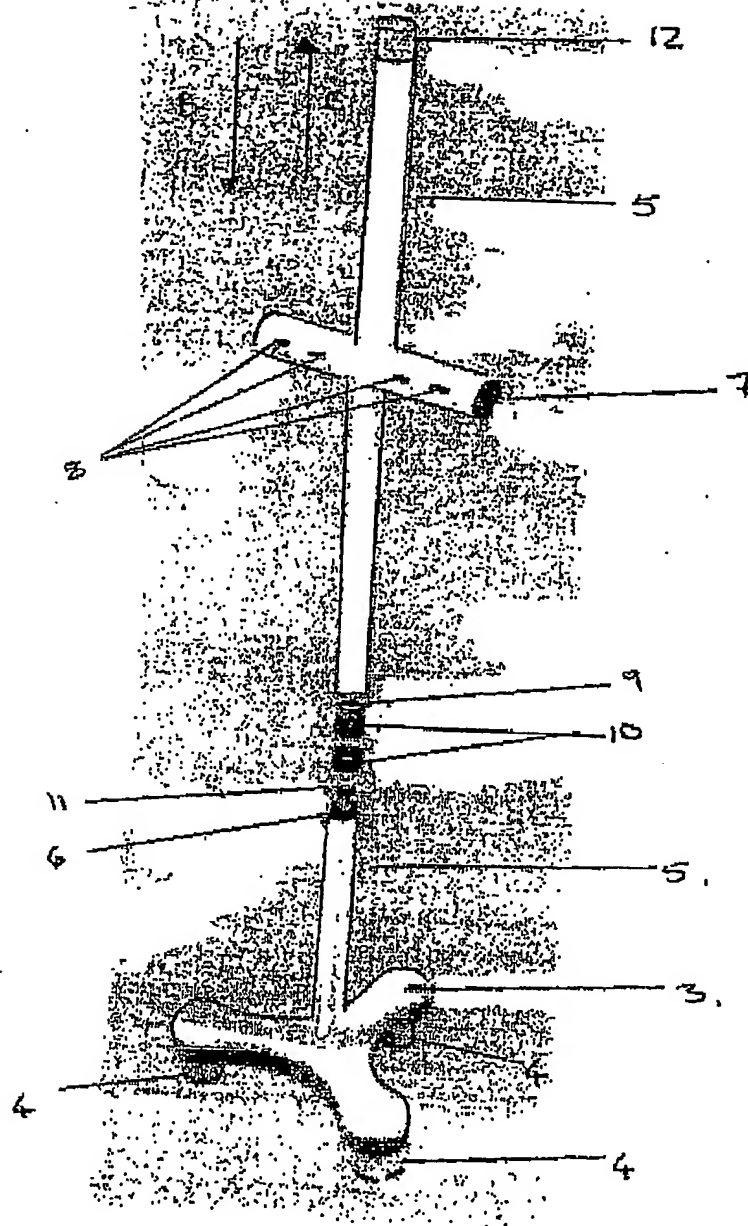


FIG. 6.

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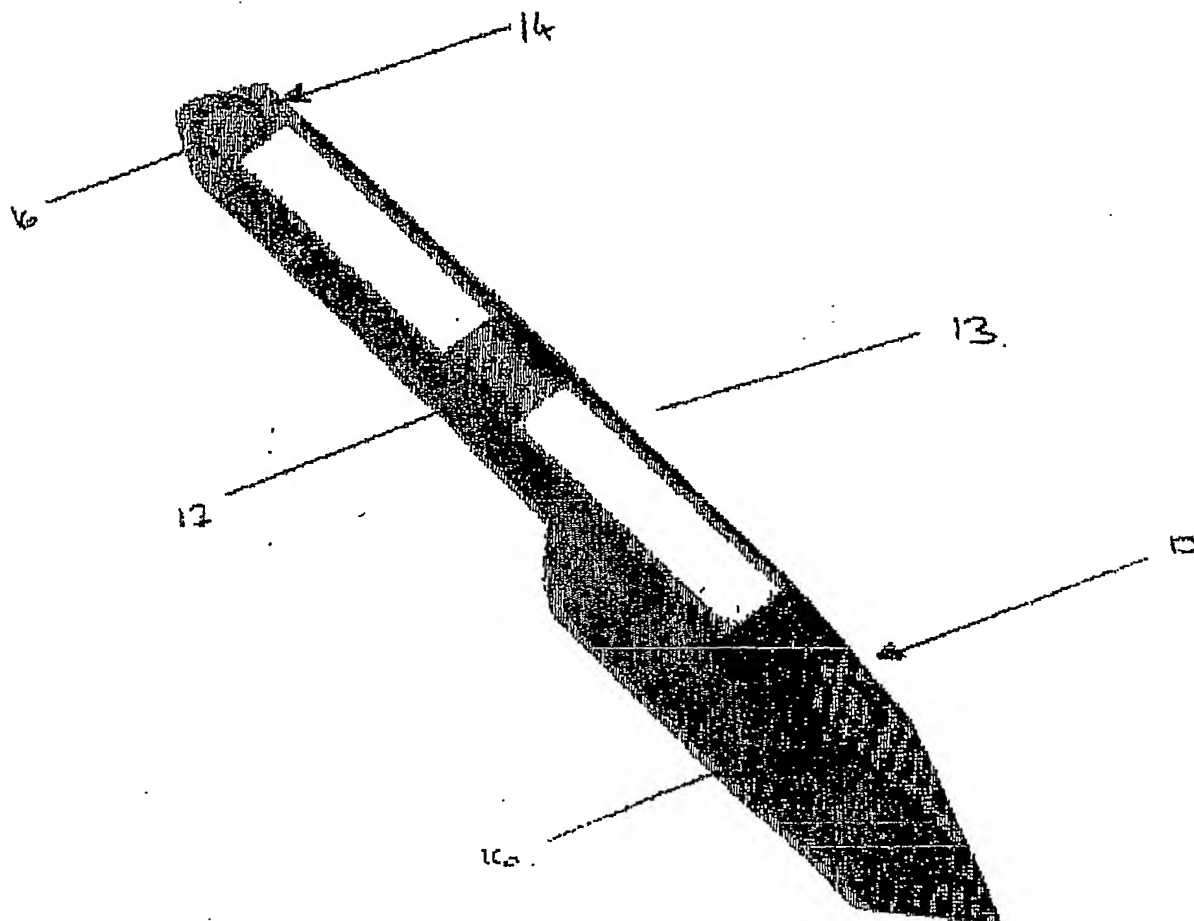


FIG 7,

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